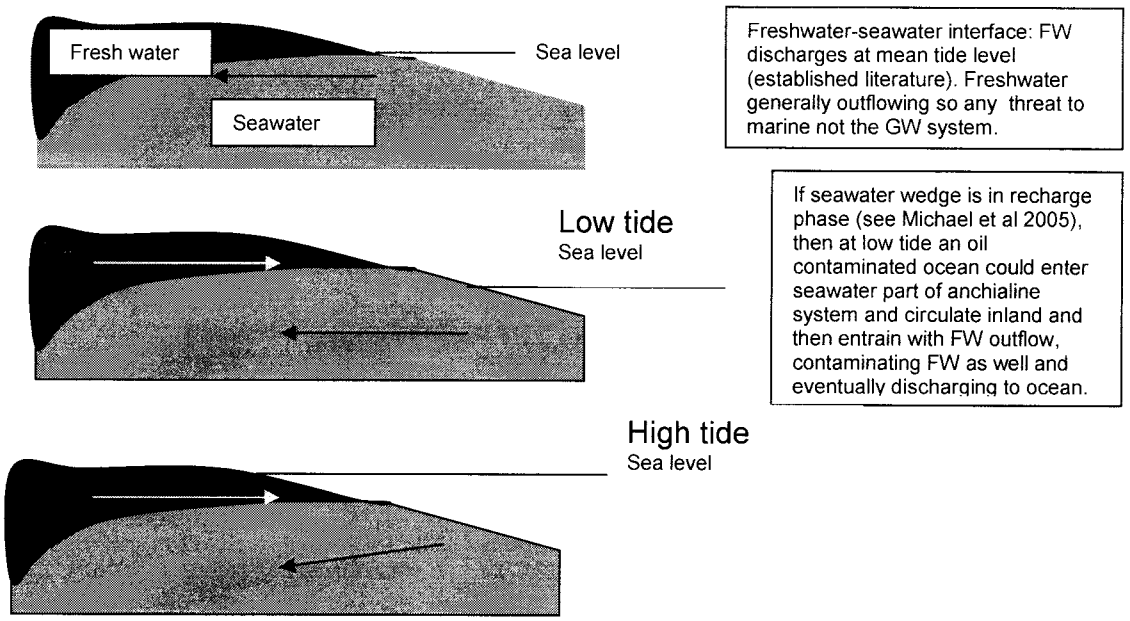
W. F. Humphreys 25 August 2006

Conceptual model of potential contamination of anchialine system as result of episodic (e.g. cyclone) recharge of the salt water component of the system.

Key questions: Is this a real threat? What is the fate of petroleum in anchialine systems?

Weak indications from Bundera Sinkhole (Humphreys 1999) and Barrow Island (Humphreys 2002) are consistent with a chemolithotrophic element to the food chain but it should be properly tested. Barrow Island provides perfect model as the anchialine system has been the repository for oily produced water and probably also has naturally discharging petroleum into the groundwater, together with hydrogen sulphide (Humphreys 2002).

W. F. Humphreys 25 August 2006



References

Humphreys, W. F. 1999. Physico-chemical profile and energy fixation in Bundera Sinkhole, an anchialine remiped habitat in north-western Australia. *Journal of the Royal Society of Western Australia* **82**: 89-98.

Humphreys, W.F. 2002. The subterranean fauna of Barrow Island, northwestern Australia, and its environment. *Mémoires de Biospéologie (International Journal of Subterranean Biology)* **28**: 107-127.

Michael HA, Mulligan AE, Harvey CF. 2005. Seasonal oscillations in water exchange between aquifers and coastal ocean. Nature 436: 1145-1148.